

Final Flight
Unraveling the Mystery of the Ice Man

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summaries of possible chapters

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Chapter 1 - Prayer Flags

On October 16, 2005, Michael Nozel and Mark Postle are traversing the Mendel Glacier in Sequoia & Kings Canyon National Park. They're approaching the highly technical "Ice Nine" route - a 60 degree slope of solid ice that leads to the summit of 13,710 foot high Mt. Mendel. Considered the most difficult alpine ice climb in California's Sierra Nevada mountains, Ice Nine is located in a remote section of the national park wilderness.

Big, angular boulders poke out of the glacier and rills of rock debris run like streams across the surface. In such a random landscape, spotting any singular object involves a serendipity bordering on the divine. Yet, the climbers spot an object emerging from the icy rubble. They investigate and discover a body, clothed in a wool sweater and an undeployed World War II-era US Army Air Forces parachute. He's lying face down, frozen into the ice.

The discovery spurs extensive media curiosity and interest by the general public. Unlike the recovery of other soldiers long missing in action, everything about this soldier is visible including his thick blond hair. Five months later, the Joint POW/MIA Accounting Command [JPAC] identifies the "Ice Man" as aviation cadet, Leo Mustonen - missing since 1942. But using the latest techniques of forensic medicine can do nothing to explain

how Mustonen came to be buried in Mendel Glacier.

Chapter 2 - Training for War

The morning of November 18, 1942, 2nd Lieutenant William Gamber bid his sister goodbye and drove to Mather Field in east Sacramento. Once at the base, he boarded his Beech 18 AT-7 Navigator #41-21079. Lt. Gamber's mission that day was to take aviation cadets John Mortenson, Ernest Munn and Leo Mustonen on a navigation training flight.

Like other aviators in the era before radar and controlled airspace, once launched into the sky the crew of the AT-7 simply disappeared. Since there was no way of tracking aircraft, between departure and arrival nobody on earth knew where they were or where they had been. With luck, after a certain amount of time, they would reappear. On this particular mission the pilot and crew became lost and never returned. Their disappearance was complete.

At the time the plane vanished, the United States was fighting a delaying action in Europe and the Pacific. Pilot and navigator training was fast and intensive. On-board navigation equipment in aircraft was rudimentary and unreliable. On the ground, navigational aids were non-existent. This forced flyers

to make their way in good weather and bad by employing experience combined with daring, cunning and luck.

During the mid-section of the 20th century, weather forecasting - not to mention forecasters - was undependable. Hence, pilots learned to trust nothing drawn on their charts. Lt. Gamber had been told to expect high ceilings and unlimited visibility. Instead, the sky on November 18th was overcast and rain threatened.

When AT-7 #41-21079 didn't return, a search was ordered. Navigation and communication limitations, winter weather and availability of air and ground crews made any coordinated searching difficult. After two months of looking along the plane's planned route, nothing was found. With snow in the mountains and rain in the valleys, the search was terminated.

Chapter 3 - The Men

Biographies of the four men aboard the missing aircraft.

2nd Lt. William Gamber, pilot and flight instructor

John Morgenson, aviation cadet

Ernest Munn, aviation cadet

Leo Mustonen, aviation cadet

Chapter 4 - The Beech 18 AT-7 Navigator

In 1941 the first of over 1000 Beech 18s were ordered from the Beech Aircraft Corporation. Some were modified into navigation trainers and designated the AT-7. In place of passenger seats were individual chart tables and navigation instruments for three students. Outwardly, the AT-7 resembled other Beech 18s except for the addition of a rotatable celestial dome just aft of the cockpit. This allowed students to "shoot the stars" with their octants.

John Little, a docent at the Museum of Flight in Seattle says, "Because it had no nasty traits," the AT-7 was a popular training airplane. Stable and easy to fly, the AT-7 was very forgiving of student pilots. It could fly as high as 26,000 feet but the cabin wasn't pressurized and lack of oxygen made 10,000 feet its effective ceiling.

Lack of oxygen not only affected the performance of pilots and crew at high elevation, it impacted engine performance as well. With a length of 34 feet and a wingspan of 47 feet, the AT-7 was not a little airplane and therefore not particularly nimble.

Stability is always a substitute for performance in aircraft. In tight corners the AT-7 lacked power, speed and maneuverability. Mountain flying would be very dangerous when the

surrounding peaks and ridges were almost 4000 feet higher than the aircraft and crew's limits of endurance.

Chapter 5 - Problems with the Search

Lt. Gamber and his three cadets cleared Mather Field at 8:30 AM with five hours of fuel. At 1:30 PM a search party was organized when the plane failed to return to base. In reading contemporary reports, officials weren't surprised that no radio contact had been made after the AT-7 left Sacramento. Radios in the 1940s were unreliable and required trained operators. They were also expensive and often deemed unnecessary in training aircraft.

An uncoordinated search along the plane's supposed route in the Central Valley and Valley foothills was conducted from the air and ground by military personnel, US Forest Service rangers, State Forestry rangers, sheriff's deputies, hunters, California Highway Patrol officers and loggers. On December 14, 1942 the search was abandoned. AT-7 #41-21079 had disappeared without a trace.

In 2006, an examination of weather data between November 18 and December 14, 1942 provides clues explaining why the plane wasn't located. Searchers were looking in all the wrong places.

Facing a storm, Lt. Gamber had either become lost in the clouds and/or been blown off-course into the Sierra Nevada.

Rising between two and three miles into the sky, the High Sierra has always presented a significant challenge for air travel. The range is high, produces its own unique winds and weather, and offers little range for pilot error. A pilot, lost in the unfamiliar terrain of the Sierra, would be confronted with a maze of deep canyons surrounded by ridges and peaks ranging from 12,000 to over 14,000 feet high. It wasn't a good place to be in an underpowered airplane with three inexperienced crew members.

Chapter 6 - Climate Is What You Want, Weather Is What You Get

California is known for its mild climate, yet it has some of the most dynamic weather in the United States. This occurs because there is a big ocean on the west, a big desert on the east and a deep valley in the middle flanked by two significant mountain ranges.

Autumn in California's Central Valley is a time of unpredictable weather. Days, or weeks, of moderate weather alternate with cold, blustery and wet winter-type weather. An experienced pilot would be fatalistic about this kind of

atmospheric unpredictability. With nothing you can do about it, you may as well fly in it. Besides, pilots at Mather Field were training for combat and any soldier knows it's impossible to determine when battles will be fought. May as well get experience in all kinds of conditions.

As an experienced pilot and aviation instructor, there is no doubt Lt. Gamber consulted the weather forecast. And no doubt he didn't believe a word of it - even though the forecasters said not to worry. In August of 2006, Laura Edwards, with the Western Region Climate Center, examined the meteorological charts from November 18, 1942 and suggested that Lt. Gamber had plenty of cause for concern. Another front, with rain and snow, high winds and a lowering cloud ceiling, was clearly on its way.

What Lt. Gamber would have trusted to was his own experience. A glance out the window told the pilot what to expect. An inch of rain had fallen the previous day - grounding all flights. This morning was cool with another taste of rain in the air. With that knowledge, Lt. Gamber would have shouldered his parachute and gone on to meet his students, thinking it a perfect and challenging day to work on navigation and piloting since visibility would be spotty and the air unsettled.

George Bond and Thomas Hodges were on an extended pack trip through Sequoia & Kings Canyon National Parks during the summer of 1947. The two fraternity brothers at the University of California figured on climbing Mt. Mendel. The peak had been first climbed in 1930 and rarely summited since.

Bond had served with the 10th Mountain Division in Europe during World War II. That's why he knew what he was looking at on the Mendel Glacier the day he and Hodges discovered the wreck of an aircraft. There were pieces of a fuel tank, a wheel and part of an airplane engine. "I found shreds of human flesh," Bond recalls. There was also a name badge bearing the name, John M. Morgenson, and the back of a watch, "with a guy's name on it." He and Hodges made a debris pile of what they could find and continued their trip. "We figured we could pick up the stuff later," but after another month in the backcountry they never returned to Darwin Canyon.

Bond reported the find when he returned to Berkeley in September and the Air-Sea Rescue group from Hamilton Air Force Base convinced him to guide them back to the site. The trip was part lark, part farce and part tragedy. "By the time we got back there in October, there was over three feet of new snow," Bond recalls. He couldn't find the debris pile left behind in August. "The Army people were interested in the actual engine numbers," he says and not much else. They found the nose section of one of

the AT-7 engines visible in the upper 1/3 of the glacier and removed the engine tag. That's when they were able to confirm the aircraft's identity. What they had found was Lt. Gamber's missing AT-7 #41-21079.

It had taken Bond and his charges three days of hard horse packing and hiking to get to the site. With winter closing in, the days and nights were cold, the weather severe and the Army men had no experience in the High Sierra. Getting up Darwin Canyon to Mendel Glacier involved a strenuous hike over steep and rocky terrain with not a trace of a trail. Due to the cold and wintry conditions, everyone was anxious to wrap up the work and leave.

Contrary to official reports released to the press, no remains were recovered in 1942. In their report the Air-Sea Rescue crew wrote, "Due to extremely dangerous conditions, further investigation was deemed inadvisable. Insufficient remains were found for identifying bodies or to indicate the number of persons aboard."

The report continually referred to the site as being located, "on the north side of Darwin Peak [37 10'N, 118 40'W], or "northerly section of Darwin Glacier," or "Darwin Glacier on the north side of Darwin Peak." On being informed of this in 2006, Bill Bond wasn't surprised at the confusion exhibited by the military. "Maps of that day were not very accurate." The

military, "Didn't have *any* idea where they were."

Chapter 8 - Going Back - 1948

There was a return to the glacier in 1948 in hopes of finding something more than the previous year. Bill Bond was enlisted, once again, to guide a team of mountain troops to the site. The Army men flew in from Fort Lewis in Washington and met Bond in San Francisco to plan the expedition. With them they carried gas-powered generators and jackhammers to pierce the ice.

Unfortunately, there was no room for Bill Bond in the military transport and he had to take the Greyhound to Fresno and then hitch-hike to the trailhead. Somehow, Bond's gear was lost in transit. Though he never met up with the 1948 recovery team in the Sierra, he did make contact with them again in San Francisco on their way home. When he enquired about what they found he was disappointed to discover that climate and weather had triumphed once again. The team of crack troops had come up empty handed.

Chapter 9 - Rock and Ice - the Mendel Glacier

Photographs taken in 1908 by G.K. Gilbert show that the Mendel Glacier and its neighbor to the south, Darwin Glacier,

have changed dramatically in the past century. An observer from the 1940s, re-visiting the area today would recognize the surrounding peaks but not the glaciers since both have experienced extensive melting and retreat.

Gilbert is also responsible for introducing confusion when it comes to naming the glaciers. He referred to the Mendel Glacier as the "little Darwin Glacier" - a distinction that is important to solving the mystery of the Ice Man. Recall that he was found on the Mendel Glacier though the 1947 military report written during the first recovery operation flatly states that aircraft wreckage was found on the Darwin Glacier.

Douglas H. Clark, with the Geology Department at Western Washington University, says the Mendel Glacier is an anomaly when it comes to glaciers. "It's actually a 'rock' glacier - a small, sluggish rubble-covered glacier." The distinction is important when considering the Ice Man because, "The surface rubble on the glacier causes it to behave differently than normal 'clean' glaciers."

Rubble on, and in, the Mendel Glacier acts as an insulator, allowing the ice under it to last many years longer than on clean glaciers. Unlike clean glaciers, as climate warms, rock glaciers don't recede or retreat. They thin and melt in place. It's this thinning that exposed the Ice Man's body. Clark says, "The 1940s through the 1960s were generally a time of slight cooling in much

of the world and the Mendel may have thickened up, covering the crash site with snow (which turned to ice), and only the last few decades of low snow accumulation has caused the glacier to thin out again, exposing the remnants," and the Ice Man as well.

Chapter 10 - Ice Nine

A wide crack in the bedrock beneath Mt. Mendel fills with snow every winter. When that snow turns to ice, climbers call the route up the Mendel couloir, "Ice Nine." John Moynier, author of, "Climbing California's High Sierra, The Classic Climbs on Rock and Ice," points out, "The north face of Mt. Mendel is perhaps the most difficult alpine ice climb in the Sierra." It wasn't first climbed until July, 1967.

Yet, without the interest of climbers like Bond and Hodges in 1947 and Nozel and Postle in 2005, Lt. Gamber's AT-7 aircraft lost in 1942 would have never been discovered. Darwin Canyon, its peaks and its glaciers are remote but not so remote that they're impossible to reach. But they are sufficiently off the beaten path that people accessing the area must make a concerted effort to get there. Some 80,000 hikers visit the backcountry of Sequoia & Kings Canyon every year, with 80% of that visitation being in August. However, the Darwin Canyon glaciers may see less than 20

annual visitors.

Without the allure of wilderness travel and climbing, neither team of climbers would have ever made their discovery and the Ice Man would still be encased within the Mendel Glacier. What is it about the Sierra Nevada that draws people so deeply into its wilderness?

Chapter 11 - Aircraft Crashes in the Sierra

The Sierra Nevada has always served as an effective roadblock to human transport. In the 19th century, travelers preferred detouring through hundreds of miles of desert to avoid the mountains. Even today, roads cross these mountains over only a few scattered passes. South of Sequoia National Park and north to Yosemite there are no roads across the crest.

For aviators, the Sierra has been a barrier so dangerous that few pilots attempt a crossing. The mountains create their own weather. Rising between two and three miles above sea level, the High Sierra presents an enormous challenge for air travel. The range is not only high, it produces its own unique winds and weather. It offers little range for pilot error.

The air wrecks within the Sierra are many - and famous. In 1932 a legion of searchers would take two months to find Lt.

Edward Hoffman, lost somewhere in the Mineral King country of Sequoia National Park. In 1941, a squadron of P-40 Warhawks were lost in bad weather and rained from the sky, crashing all over the Sierra. Wreckage from the last plane wasn't discovered until 1959 in Kings Canyon. A bomber lost in 1943 was found 17 years later - in the bottom of a remote Kings Canyon lake. A plane wrecked in 1951 with three Stanford University students and was so remote when discovered that it took two days for the eight-man recovery party to ride in by horse. A Beechcraft "Bonanza" went down in 1953 and two members of the rescue team were nearly killed when their own aircraft crashed in Kings Canyon.

A famous wreck in the Sierra involves Lt. David Steeves. In 1957 he ejected over Kings Canyon and, after being given up for dead, emerged 54 days later. Accused of selling his fighter plane to the Russians, Steeves eventually died in another plane crash. The canopy from his aircraft was finally found by a Boy Scout troop in the 1970s - the rest of the airplane remains missing.

Dope smugglers have crashed in the High Sierra and so have pleasure craft. In 1976, Lauren Elder took up an offer to be the third passenger on a Cessna, making the trip from San Francisco to Death Valley. Her whim turned tragic when the plane crashed a few feet below the Sierra crest. Elder was the only survivor.

Bad weather and pilot error played a role in every one of these crashes. It couldn't have been any different for Lt.

Gamber's AT-7 #41-21079.

Chapter 12 - Recovery

The Ice Man was found high up on the Mendel Glacier near its bergschrund - the top area of a glacier where it separates from the sheer rock wall above it. Because of the elevation and difficulty of reaching the site, the late season made recovery of the body not only a challenge but a dangerous challenge. Bad weather dogged the recovery team in 2005 just as it had the 1942 flight, 1947 recovery team and the 1948 team from Fort Lewis.

Archeologists from the Joint POW/MIA Accounting Command [JPAC] and National Park Service [NPS] began working on extracting the Ice Man from the glacier. His head and upper torso were exposed but he was still 80% encased in ice. Under the direction of NPS archeologist, Keith Hamm, they got him out by digging three feet down and the length of the body with plenty of margin on each side. In all, there was about 400 pounds of ice associated with the body.

The next step was to take the Ice Man down the mountain to Fresno where the County Coroner awaited him. JPAC and the NPS also began dedicating staff to dealing with the high degree of media interest. A news conference was held at Sequoia & Kings

Canyon National Park headquarters where video, shot during the recovery, was shared with the press.

Chapter 13 - Identifying the Ice Man

The name badge found on his shirt became the first step in identifying the Ice Man using modern medical forensics.

Consulting a limited paper trail, investigators were certain the body on the glacier came from the November 18, 1942 crash of AT-7 #41-21079.

Loralee Cervantes, Fresno County Coroner, began the process of defrosting the Ice Man's body. Investigators wanted to keep as much of him intact as possible to aid in identification. The process began with bringing him to room temperature to separate any clothing or other material found around the body. X-rays were taken in the hopes of finding dog tags but there were none. Cervantes said, "The body had massive injuries," and, "He didn't survive the crash."

The body, before it was excavated, appeared to be face down with a frozen head, shoulder and arm protruding from the glacier." Cervantes said, "His arms were outstretched like a bird, hands bent back in natural wrist position. He was almost as if in a frog position. He was very dehydrated and weighed about 61 pounds."

The hard work of making a positive identification was turned over to JPAC. The name badge was analyzed using a video spectral comparator. Dental records were checked. A mitochondrial DNA sample was compared to relatives of all four aviators from the 1942 crash. After five months, JPAC was able to say the Ice Man was Leo A. Mustonen, 22 years old when he died in the 1942 crash.

Chapter 14 - The Mystery Solved?

Based on interviews and research, I was able to reconstruct the last day in the lives of Lt. Gamber and Cadets Mustonen, Munn and Mortenson.

Mysteries intrigue us because the "facts" of the story are often incomplete, vague and conflicting. In this story, Lt. William Gamber leaves Mather Field in AT-7 Navigator #41-21079, with three cadets on November 18, 1942 at 8:30 AM. Lt. Gamber is instrument-rated, an experienced pilot and flight instructor, with 709 hours [505 hours in the AT-7] in seven months. The cadets are on a "navigational training flight." Lt. Gamber flies with no co-pilot, suggesting the three cadets were in pilot training though the official record is silent on this subject. The plane and its crew are never heard from again.

The mystery deepens in 1947 when the plane is found 150 miles east of its turnaround point. Compounding the mystery for

journalists is a report stating that wreckage was discovered on the Darwin Glacier when the Ice Man is discovered October 2005 on the Mendel Glacier.

Bad weather certainly caused the crash. Lost, and maybe in the clouds of an approaching front, Lt. Gamber found himself crossing the Sierra Nevada. Attempting to turn around within narrow Darwin Canyon, his AT-7 was unable to rise above encircling ridges and peaks and crashed. Confusion about the crash site was created by an inaccurate 1947 report.

In reflecting upon this story it's striking how much mystery abounds in our lives. Except that we have learned to look aside when it comes calling. We order our lives to remove the unpredictable in hopes of creating a safe structure that insulates us from anything unsettling. Many people have wondered, in these modern times, in the most populous state in the Union, in one of the most popular well-traveled National Parks in the country; how could an airplane be lost in the wilderness for so long?

The reason resides in the aspects of character that make up a national park and wilderness. For those who travel the backcountry of Kings Canyon National Park and know it well, the answer is self-evident. The Sierra Nevada is large. It is empty. That is why. And that is what makes it so appealing, alluring and so beautiful.

Chapter 15 - Return to the Glacier

Mysteries like that of the Ice Man never fail to fascinate. In a world that is zipping by us so quickly, and so apparently out of control, the story of a missing soldier from World War II is something that all people can understand.

I believe the story of the four aviators lost in 1942 is more important than any story about myself. For that reason the only chapter to be written in the first person will be this one - the last chapter.

In the summer of 2007 I will make two trips to the Mendel Glacier, site of the aircraft crash that killed Cadet Mustonen and three others. With a personal essay I will reflect upon the facts and mysteries of the Ice Man, his fellow cadets and their skipper, 2nd Lt. William Gamber.

The historic plane wrecks of Sequoia & Kings Canyon National Parks hold a fascination for many people. There is something about these wrecks, related perhaps to their remote location and associated mystery, that never fails to fascinate.